

Wa 6906
2-19-87

17a

CLOSURE PLAN
FOR
RIDGEFIELD BRICK AND TILE SITE
Ridgefield, Washington

Prepared by
Hazard Management Specialists

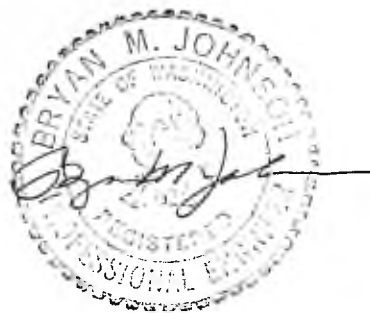
February 19, 1987



Hazard Management Specialists

CLOSURE PLAN
for
RIDGEFIELD BRICK AND TILE SITE
RIDGEFIELD, WASHINGTON

Prepared by
Hazard Management Specialists



February 19, 1987

TABLE OF CONTENTS

	Page
I. ABSTRACT	1
II. BACKGROUND	2
A. SITE HISTORY	2
B. INCINERATOR OPERATION	2
C. CLOSURE ACTIVITIES	5
D. MONITORING DATA	7
III. PROJECT APPROACH	9
IV. SAMPLING	11
A. LANDFILL SAMPLING	11
B. SOIL SAMPLING	13
C. WATER SAMPLING	14
V. SCHEDULING	16
VI. GROUNDWATER MONITORING	18
A. WELL INSTALLATION	19
B. MONITORING PROGRAM	19
REFERENCES	22

LIST OF FIGURES

		Page
FIGURE 1.	Vicinity Map	3
FIGURE 2.	RBT Site Layout	6
FIGURE 3.	Proposed RBT Site Sampling Locations	12
FIGURE 4.	Project Schedule	17

APPENDICES

APPENDIX A.	Consent Agreement and Final Order	23
APPENDIX B.	EPA Guidance on Landfill Sampling	24

TABLES

TABLE 1.	Toe Drain Leachate Analysis Results	9
TABLE 2.	Groundwater Quality Assessment Program	21

I. ABSTRACT

This closure plan is prepared to fulfill the consent agreement and final order issued by EPA Region X to Pacific Wood Treating Corporation. This order states that the respondent will prepare a Part 265, subpart G, closure plan which addresses a groundwater monitoring plan according to subpart F and soil sampling. This plan and schedule is submitted to the EPA for review and approval by the Agency.

In consideration that closure of the landfill cell has proceeded to a significant extent as a result of prior activity, discussion of previously approved closure steps will be limited, and this report will focus on groundwater monitoring issues. Other aspects of site closure are described in the referenced closure documents prepared previously by others.

Scheduling of well installation, soil sampling, and delisting petition preparation activities are presented herein. Leachate handling and disposition will not be addressed in this report. Documentation of financial assurance will be submitted separately.

II. BACKGROUND

A. SITE HISTORY

The site is located on 289th Street in Ridgefield, Washington, in the northwest quarter of the southeast quarter of Section 17 of Township 4N, range 1E, of the Willamette Meridian. A vicinity map is provided in Figure 1.

The landfill cell location was originally a clay pit created by the prior owners' manufacture of brick and tile products. The original owner of the Ridgefield Brick and Tile site indicated that a clay layer 30 feet thick was removed, at which point a 3- to 4-foot layer of mica sand was encountered. The elevation of this pit area is approximately 200 feet MSL. Well logs from nearby homes indicate that the aquifer is located at 10- to 50-feet MSL.⁽⁴⁾

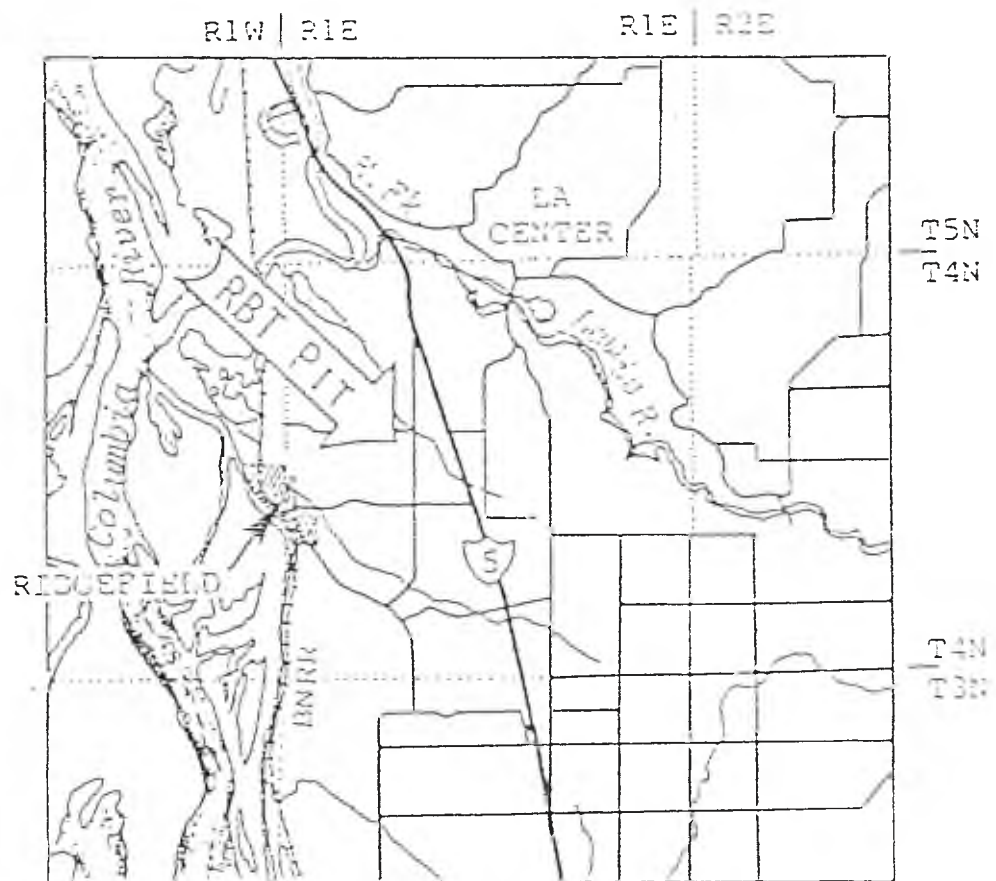
In 1979, the Pacific Wood Treating Corporation (PWT) began using the pit as a disposal site for log deck and yard cleanup waste, in addition to boiler ash. An estimated 7,600 cubic yards of material was deposited here by PWT during the extent of the site's use as a disposal area.^(3,5,6)

B. INCINERATION OPERATION

Pacific Wood Treating operates a wood preservation facility in Ridgefield, Washington. Wood is preserved with pentachlorophenol, creosote, or chrome-copper-arsenic solutions. Waste sludges from those used solutions are designated as K001 and D004 hazardous wastes. K001 waste is: "bottom sediment sludge from treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol". D004 wastes are those wastes which

FIGURE 1

Vicinity Map



Scale: 1"= approx. 20,000'

CLARK COUNTY

contain unacceptable levels of leachable arsenic. K001 wastewater sludges were regularly incinerated while CCA wastewater sludges would only be introduced to the incinerator by accident or system upset.

Exact records of sludge incineration were not kept, but some estimates of the total amounts of sludge burned can be made. PWT burned some 20 million pounds of wood per year in the boiler and, from 1979 to 1982, burned 32,000 pounds per year of waste sludges. Ash production for wood is approximately 3 percent, so the estimated total amount of ash from both wood and sludges is about 2.5 million pounds for the four year period. If ash has a density of approximately 1,000 pounds per cubic yard, this would amount to 2,500 c.y. of ash generated by PWT in the four-year period from January 1979 to December 1982.

According to the data, the weight ratio of waste sludge to wood burned in the boiler was about 1:600. Therefore, the amount of ash in the landfill from hazardous waste incineration is probably about 5,000 pounds, or 5 c.y. of material. However, because the ash resulted from incineration of K001 or D004 waste, the ash also carries this hazardous waste designation.

The boiler operated between 1,500° and 2,200° F. Pentachlorophenol decomposes at 590° F, while various creosote components burn at approximately 1,000° F. An EPA study⁽²⁾ conducted on some PWT samples reports production rates, and analysis of various ashes. The incinerator test runs produced bottom ash, multiclone, and baghouse dusts, at production rates of approximately 0.7 percent, 0.8 percent, and 0.015 percent of the weight of total feed in the furnace. This is an average from four waste sludge incineration tests in which feed rates

and analyses are presented. Removal of phenols and naphthalene was at least 98 percent in all test runs.

The incinerator was used for treatment of the hazardous waste sludges. This operation qualified the burner as a TSD facility and a permit is necessary for this activity. During an inspection of PWT by the EPA and DOE in regard to approval for the incinerator process, it was discovered that PWT was disposing of the ash in an unapproved manner. PWT had inadvertently assumed that the ash was a non-regulated waste while, in fact, it had received the same hazardous waste designation as the original sludges. Therefore, PWT began formal closure proceedings on the landfill site.

C. CLOSURE ACTIVITIES

Sweet, Edwards & Associates, Inc. and Patrick Wicks designed, developed, and certified a closure plan for the RBT landfill cell contents in 1983. These reports are listed in the references and can be provided upon request.^(3,4,5,6) A wedge-shaped landfill cell, underlain and covered by a compacted clay layer, is backed up against native soil. The cell construction details are provided in the Sweet, Edwards reports. Drains are provided up-gradient, underneath the cell, and within the cell itself, for purposes of minimizing ground and surface water contact with the cell contents. The drain for the landfill cell interior exists at the base or point of the wedge-shaped cell, and is hereafter called the toe drain. A layout drawing of the cell and drains is provided in Figure 2.

Ground water monitoring in the form of lysimeters was provided in the Sweet, Edwards design. Lysimeters monitor the unsaturated, or vadose, zone of ground water. These were placed above the landfill to the southeast, to the west (nearly directly south of the western corner of the

buildings), and near the small concrete block building near the street. These lysimeters sample the interstitial water in the mica sand unit just above the cemented gravel unit. The presence of water in the sand unit is seasonal and, therefore, in the dry seasons, the uppermost aquifer is lower than this sand unit. Although lysimeter sampling of the unsaturated zone is an approved ground water monitoring technique, the units installed at this site did not always produce water.

On November 21, 1986, the EPA issued a consent agreement and final order to PWT to prepare a closure plan which included a ground water monitoring plan. The requirements of 40 CFR 265, Subpart F, and 270.14(c), specify that PWT shall identify the uppermost continuous aquifer and drill four monitoring wells to sample this uppermost aquifer. This is included in Appendix A for reference.

D. MONITORING DATA

As specified by the Closure Plan submitted to Washington's Department of Ecology in 1983, the toe drain water has been sampled on quarterly and annual bases. These samples have been analyzed for PCP, naphthalene, and EP metals. On occasion, detectable amounts of these constituents have been reported, but in the quarterly samplings performed to-date, none of the contaminants have been present at more than 10 ppb. These results are summarized in Table 1.

TABLE 1

TOE DRAIN LEACHATE ANALYSIS RESULTS

Sampling Date	PCP ppb	Napthalene ppb	Arsenic ppm
10-20-83	0.56	10	.009
1-11-84	1.27	5	<.005
3-26-84	2.70	<5	.008
9-14-84	<.1	<.1	<.005
1-17-86	<.75	<1	<.005
4-17-86	1.14	4.9	<.005
4-17-86	<1	6.1	<.005
2-5-87	<1	.45	<.005

III. PROJECT APPROACH

Due to the nature and operation of the incineration process, the degree of hazard represented by the ashes and klinker wastes is minimal. The furnace operated at a temperature well above the ignition temperature of pentachlorophenol (PCP) and most creosote constituents. Pentachlorophenol decomposes at 590°F. On occasion, CCA waste sludges were inadvertently incinerated, which accounts for sporadic evidence of arsenic in some ash samples. Additionally, the weight fraction of ash from hazardous waste incineration in the landfill cell is approximately 0.2 percent of the total ash in the cell. Therefore, the concentration of PCP, creosote constituents, and arsenic as a percentage of the cell material is much less than that present in the original ash. Finally, the ash has been exposed in the environment for approximately seven years now, and contamination from leaching, if any, would have occurred while the site was operated as an unregulated unit.

In consideration of the minimal hazard potential represented by this approved landfill cell, and the substantial expense of drilling four ground water monitoring wells to a depth of 200 feet, PWT is preparing a petition to the EPA to delist the cell contents from hazardous waste regulations. A delisting procedure will involve ground water, soil, and waste sampling in order to document a non-hazardous nature or the immobility of hazardous constituents. The following outline of project activities is directed at simultaneously performing the required closure plan, ground water monitoring, and soil sampling, in coordination with water, soil, and waste sampling required for the delisting petition. Scheduling of the various activities is based on avoiding the expense of deep well installation, provided that the cell and its contents can be removed from hazardous waste regulation. The various activities associated with preparation of the

delisting petition are presented in this report for the sake of clarity and completeness.

IV. SAMPLING

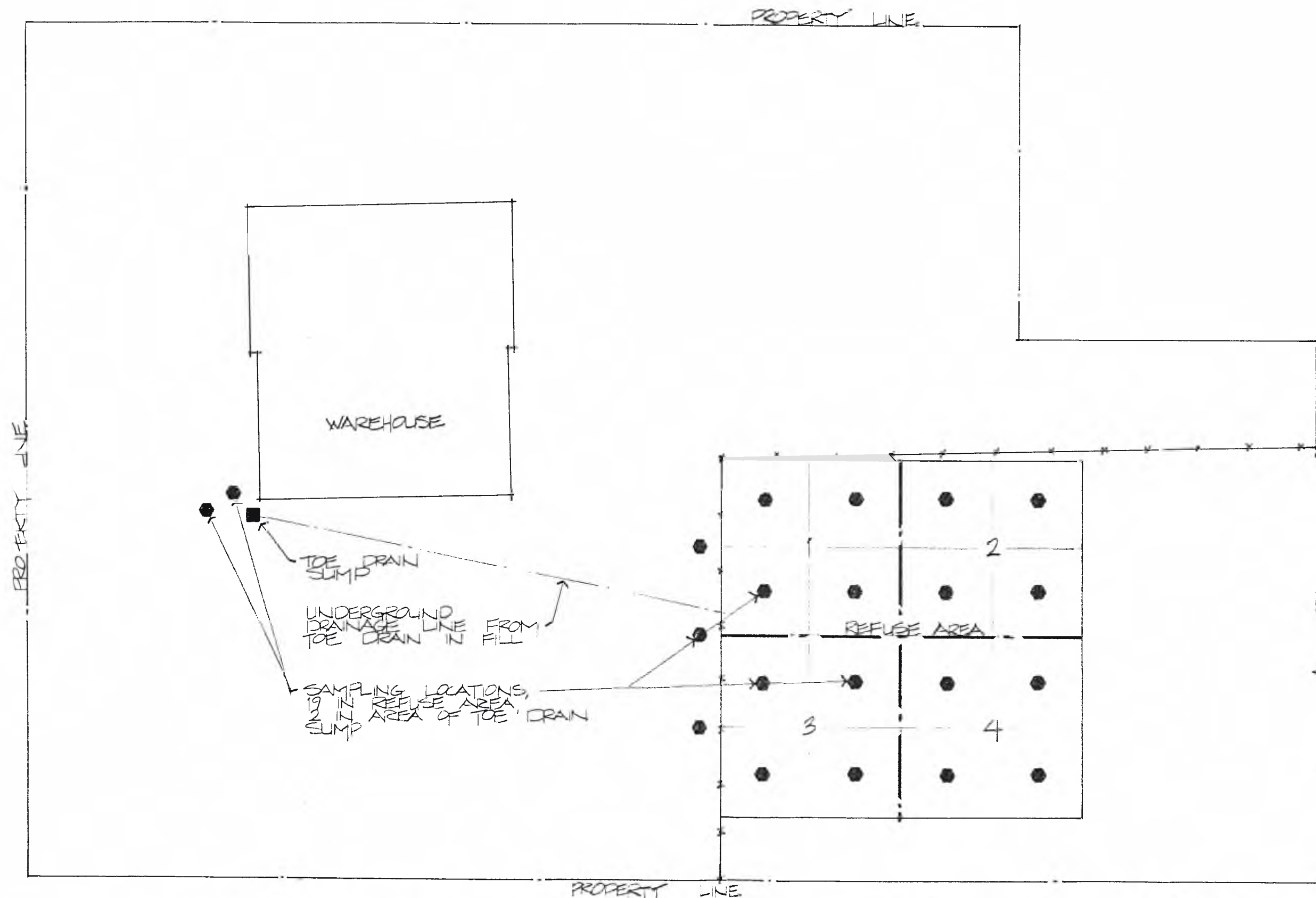
For use in the delisting petition, sample collection, handling, and analysis must be performed according to rigorous quality control/quality assurance considerations. The landfill cell contents and soil from the surrounding area will be sampled, and the drain and underdrain water will be sampled. This sampling will begin during the spring of 1987.

A. LANDFILL CELL SAMPLING

not part of order

As recommended by an EPA Guidance Manual⁽¹⁾ on delisting hazardous wastes, the landfill sampling locations are determined by the following regimen. The landfill area, which is 32,900 ft², is split into four equal quadrants as illustrated in Figure 3. The landfill in the western quadrants, or quadrants numbered 1 and 3, is not as deep as the landfill in quadrants numbered 2 and 4, because the western edge of the fill is shallower. The EPA-recommended sampling technique for landfills is to collect vertical samples along the entire depth of the landfill cell. The section on landfill sampling techniques is reproduced in Appendix B for reference.

This proposed sampling plan will allow most of these guidelines, with certain exceptions as noted. The number of sampling points chosen per quadrant is chosen as a function of the spatial variability of the waste. Because the RBT landfill cell contents have been excavated, moved, and compacted into one-foot lifts under the cell as a result of previous closure activity, this waste is probably much more homogenous than a normal landfill content would be. Therefore, the number of samples to collect from each quadrant is recommended to be four. Because of the low number of samples to collect, the random number basis for sample location selection is not



SAMPLING LOCATIONS

SCALE: 1"=50'

Hazard Management Specialists
consulting engineers
portland, oregon

project RBT SITE				
dwg. title SAMPLING LOCATIONS				
designed ET	drawn MEW	approved ET	date 2/13/87	dwg. no 3

recommended. Rather, sampling locations will be distributed evenly throughout the cell as shown in Figure 3.

The EPA guidelines recommend samples collected along the entire vertical span, including the bottom. Because the bottom of the landfill cell has an engineered impervious clay layer to keep leachates from contaminating the ground and ground water, puncture and sampling of the bottom layer is not recommended. Sampling by core drilling must proceed very carefully in order to avoid penetrating the clay layer and thereby creating a leaky landfill cell. In order to aid in drilling accuracy, a survey of the site will be conducted prior to any sampling activity. This will locate elevations, stake out sampling bore holes, and provide an up-to-date idea of the landfill area topography.

Sixteen core drillings in the landfill will be performed. Five-hundred gram (500 gm) samples will be collected at one-foot intervals for quadrants 1 and 3 until the clay bottom of the fill is encountered. Five-hundred gram samples will be collected at four-foot intervals from quadrants 2 and 4. Samples from the same quadrants will be composited and analyzed. Appropriate sample handling, storage, and documentation will be observed. Landfill cell contents will be analyzed by an EPA-certified laboratory for PCP, naphthalene, copper, and EP toxicity, reactivity, corrosivity, and ignitability.

B. SOIL SAMPLING

According to the order from the EPA, this closure plan will also provide for a soil sampling plan to determine if any releases of hazardous wastes from the leachate collection system have occurred. The comments from EPA inspectors of the RBT site indicate concern about the toe drain leachate overflowing at the sump at the southwest

corner of the warehouses. Therefore, this plan proposes to collect two core drilled soil samples immediately downhill from this concrete sump area. Cores will be drilled to four feet deep, and three 500-gram samples will be collected at 2-foot intervals. This includes surface soil and soil at two feet and four feet deep. Additionally, three cores will be drilled immediately downhill of the landfill, all in the same way. The proposed locations of these drillings is indicated on Figure 3. These are ten feet outside and downhill of the cell area, and placed at the east-west center line of quadrants 1 and 3, and are at the east-west center line of the entire landfill.

All sampling procedures will conform to recommended collection handling and documentation standards specified in EPA guidelines. This sampling plan provides for two samples near the toe drain sump area and three samples at the front of the landfill, all four-foot drillings with samples composited from the surface and two depths. Samples will be analyzed for PCP, naphthalene, chromium, copper, and arsenic.

C. WATER SAMPLING

As a part of both the closure plan and the delisting program, both underdrain and toe drain water will be sampled and analyzed monthly. If underdrain water is contaminated with PCP, creosote, or CCA process constituents, then this would indicate a leak from the landfill. If underdrain water does not show detectable amounts of any contaminants, and the toe drain water does, then this would indicate the cell construction is still probably satisfactory, and leachate from the landfill is not escaping into the ground. And, if toe drain water shows very low levels of contaminants, then this data will provide evidence to aid in the delisting effort.

Therefore, this monthly sampling regimen will provide an early warning system for leak detection and background data for the delisting petition.

As a part of the closure proceedings, and to insure the collection of representative samples, the toe drain network will be excavated near the distribution box, inspected, and modified to allow for leachate collection at the toe of the landfill. This is in contrast to the present system which provides for sample collection at the sumps, which are over 200 feet away from the landfill. Monthly grab samples will be collected and analyzed for the same constituents as performed in the quarterly monitoring: PCP, napthalene, and arsenic.

V. SCHEDULING

The proposed schedule for closure plan and delisting petition preparation is outlined in a bar chart in Figure 4. Activities for the closure plan and the delisting will proceed simultaneously. Soil sampling for the closure plan and landfill contents sampling for the delisting petition can occur together. This sampling activity is scheduled for late March and early April, 1987. A six-week period for sample analysis is allowed. During this time, background information for delisting petition can be prepared. The petition will be submitted in June, 1987, and a two-month period for EPA review will be allowed.

If the EPA response to delisting does not appear favorable, then the deep well installation can begin in September when the ground has become firm and dry. Due to the nature of the large equipment used for the well drillings, a late summer time frame is chosen to simplify mobility and operations. Additionally, this schedule allows for the cancellation or postponement of deep-well drilling in the event that delisting appears probable.

SCHEDULE

PROJECT TITLE PACIFIC WOOD TREATING CORPORATION

PROJECT NUMBER 014

PROJECT NUMBER 014		Feb				Mar				Apr				May				Jun				Jul				Aug				Sept			
ACTIVITY		7	14	21	28	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12
Submit Closure Plan				●																													
Closure Plan Review by EPA					■	■	■	■																									
Survey Landfill Site						■	■	■																									
Sample Landfill and Soil								■	■	■	■																						
Sample Toe Drain and Underdrain Water				●					●			●				●				●		●		●						●			
Analyze Soil and Cell Contents											■	■	■	■	■	■																	
Submit Delisting Petition to EPA																					●												
Petition Review by EPA																						■	■	■	■								
Preliminary Response from EPA																														●			
Drill deep wells																																■	
FIGURE 4																																	

FIGURE 4

DIST:

VI. GROUNDWATER MONITORING WELL INSTALLATION

A. WELL INSTALLATION

According to the consent agreement and final order, a groundwater monitoring system will be installed to comply with subpart F of 40 CFR 265, and with 270.14(c). These specify monitoring the uppermost continuous aquifer with four wells, one up-gradient and three down-gradient of the site.

Well logs from the neighboring private homes indicate there is a clay layer from 0 to 50-feet down just east of the RBT pit, while further west, the clay changes to a silty clay and then a silty sand before 50-feet. A well drilled west of the pit showed sands and gravels from 50-feet to 140-feet, at which point there is a 20-foot thick layer of clay. Further west, this clay layer is not encountered until 190-feet down, and is much thinner, only 4-feet thick. If any leakage or contamination has been caused by the landfill, it would probably be detected at this clay barrier rather than the reported static groundwater level which is approximately 220-feet down. Contaminated water may flow down the surface of the clay layer, if it is continuous at the site. Care will be taken to collect perched water above these more impervious layers in order to document any contamination or lack thereof. Care must be taken to define the uppermost impervious layer under the site, and to determine if it holds a measurable groundwater aquifer. *we know it does from prior work*

Troutdale? In the event that removing the RBT landfill from hazardous waste regulation through a delisting procedure is not possible, wells to monitor the uppermost aquifer will be installed. Four wells would be installed to approximately 150-feet deep, as indicated by the depths of private wells in the surrounding neighborhood.

According to the U.S. Geological Survey Water Supply Paper 1600, the deep aquifer of the Troutdale formation flows generally from the southeast toward the northwest. Therefore, the wells will be placed close to the landfill cell, within the boundaries of the PWT/RBT property. Wells will be sealed with bentonite slurry. Because aggressive solvents or highly acid conditions are not expected, a well casing material of PVC will be chosen for these wells. The wells will be capped for security reasons so that only authorized personnel can open the wells to sample. Wells will be developed by pumping.

Initially, two 6-inch wells will be drilled at the assumed up-gradient and down-gradient locations, or southeast and northwest, respectively. A pumping test will be performed in order to verify the groundwater flow direction. Once results of this pumping test have been obtained, the final two wells will be installed at the appropriate locations. These will be four-inch diameter PVC casing wells.

B. MONITORING PROGRAM

Initially, all groundwater samples will be tested for all general parameters that indicate drinking and groundwater quality, and pollution. Additionally, all well waters will be tested for PCP, naphthalene, and arsenic. It is necessary to establish background levels of these indicators before judgments can be made on contamination. Water level measurements will be made at each sampling. The well water will be analyzed quarterly for one year in order to establish background levels. Four replicate determinations will be performed on each sampling in order to establish the standard deviations of the sampling and analysis techniques. An outline of the proposed assessment of the groundwater quality is provided in Table 2.

RBT Site-specific compounds include PCP and arsenic. Appendix III compounds include those listed on the drinking water standards: metals, pesticides, radioactivity, coliforms, and other standard drinking water parameters. From this list, the radioactivity, coliform, and pesticide analyses will not be performed. 40 CFR 265.92(2) compounds include chlorides, iron, manganese, phenols, sodium, and sulfate. 40 CFR 265.92(3) analysis includes pH, specific conductivity, total organic carbon, and total organic halogens.

*Pentachlorophenol
and
arsenic
see p 20*

TABLE 2
GROUNDWATER QUALITY ASSESSMENT PROGRAM

Date	RBT Site-Specific Compounds	Groundwater Analyses to Perform		
		Appendix III, Part 265, Drinking Water Standards*	265.92 (2) Groundwater Quality	265.92 (3) Groundwater Contamination
10-15-87	X	X	X	X
1-15-87	X		X	X
4-15-87	X		X	X
7-15-87	X		X	X
10-15-87	X		X	X
1-15-88				
4-15-88	X			X
7-15-88				
10-15-88	X		X	X
1-15-89				
4-15-89	X			X
7-15-89				
10-15-89	X		X	X

* excluding radioactivity, coliform, and pesticide analyses.

REFERENCES

1. "Petitions to Relist Hazardous Waste, A Guidance Manual", published by NTIS, PB85-194488, April 1985.
2. DeRos, et al., "Measured Multimedia Emissions From the Wood Preserving Industry", March 1981.
3. Sweet, Edwards & Associates, Inc., "Draft Closure Plan for Ridgefield Brick and Tile Site, Ridgefield, Washington", July 15, 1983.
4. Sweet, Edwards & Associates, Inc., "RBT Site Preliminary Groundwater Investigation".
5. Wicks, Patrick, "Report on Certification of Closure of the Ridgefield Brick and Tile Site, Ridgefield, Washington", February 15, 1984.
6. Sweet, Edwards & Associates, Inc., "Addendum to Draft Closure Plan, Ridgefield Brick and Tile Site, Ridgefield, Washington".

APPENDIX A

CONSENT AGREEMENT AND FINAL ORDER

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
2
23
24
25
26
27
28

RECEIVED
DEC 24 1986

HAZARD MANAGEMENT SPECIALISTS
PORTLAND, OREGON 97204

RECEIVED
DEC 5 1986
P. W. I.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

IN THE MATTER OF:

Environmental Protection Agency,
Complainant,

v.

Pacific Wood Treating Corporation,
Respondent.

RCRA Docket No. 1085-09-26-3008P

CONSENT AGREEMENT AND FINAL ORDER

A Complaint and Compliance Order was issued against the Respondent, Pacific Wood Treating Corporation ("PWT"), in this action, pursuant to Section 3008 of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6928, et seq. The Complaint and Compliance Order was issued on September 20, 1985, and alleged violations of RCRA and accompanying regulations, as adopted by the state of Washington.

In full and complete settlement of the matters alleged in the September 30, 1985 Complaint and Compliance Order, and

CONSENT AGREEMENT AND ORDER - Page 1

1 pursuant to 40 CFR § 22.18, the following Consent Agreement and
2 Final Order is agreed to by all parties, and entered against
3 Respondent Pacific Wood Treating Corporation.

4
5 I. FINDINGS OF FACT

6 1. Respondent owns and operates the Ridgefield Brick
7 and Tile land disposal site, located at 3510 N.W. 289th Street,
8 Ridgefield, Washington. The site is a hazardous waste landfill
9 consisting of approximately three quarters of an acre, on the
10 outskirts of Ridgefield, Washington. In this document, the site
11 will be referred to as the PWT/RBT facility or the landfill.

12
13 2. Respondent submitted a Part A hazardous waste permit
14 application for the PWT/RBT facility to EPA on May 25, 1983. The
15 application stated that hazardous waste disposed in the landfill
16 was ash from the PWT wood-waste boiler plant contaminated with
17 ash from incinerated hazardous waste K001 (bottom sediment sludge
18 from the treatment of wastewaters from woodpreserving processes
19 that use creosote and/or pentachlorophenol), and through system
20 upset D004 (arsenic). The hazardous waste was first received at
21 the landfill in 1979, and was last received on January 25, 1983.

22 3. The PWT/RBT facility is subject to the provisions
23 of RCRA, including the Hazardous and Solid Waste Amendments of 1984,
24 and the delegated state of Washington program, and to applicable
25 regulations found at WAC 173-303, including the interim status
26
27
28

standards found at WAC 173-303-400. Those standards incorporate by reference the interim status standards of 40 CFR Part 265, Subpart F through R.

4. Closure of the PWT/RBT facility was done by the Respondent between September 15, 1983 and January 16, 1984, under supervision of the Washington State Department of Ecology ("Ecology"), and pursuant to a closure plan submitted to Ecology by the Respondent. That closure did not provide for a groundwater monitoring system which met the requirements of 40 CFR Part 265, Subpart F for landfills. The plan also did not include provisions which addressed the regulatory requirements for post-closure care or post-closure financial assurance.

5. Leachate from the landfill, a hazardous and dangerous waste by definition, is discharged from the toe drain at the landfill. This waste is not managed in accordance with the generator requirements of 40 CFR Part 262.12(c), nor does Respondent have a permit to dispose of hazardous waste on site as required by 40 CFR § 270.1(c).

CONCLUSIONS OF LAW

6. Based upon the foregoing, Respondent is found to be in violation of the following federal regulations, which are incorporated by reference in WAC 173-303-400:

a. 40 CFR § 262.10(b), regarding recordkeeping, and/or the land disposal requirements of 40 CFR Parts 264, 265 or

1 270, regarding the management of leachate collected from the
2 landfill (see the comment following 40 CFR § 265.310(d)(2) regard-
3 ing the treatment of leachate);

4
5 b. 40 CFR §§ 265.90-94 and 265.310(b), which
6 requires any land disposal facility to maintain a groundwater
7 monitoring system in full compliance with 40 CFR Part 265, Subpart
8 F during the closure and post-closure period for a landfill;

9 c. 40 CFR § 265.145, which requires the establish-
10 ment of documents demonstrating compliance with the financial
11 assurance requirements for post-closure care of the landfill.

12
13 AGREEMENT

14 7. Respondent admits the jurisdictional allegations of
15 this Agreement, and admits the Findings of Fact and Conclusions
16 of Law contained in this Agreement.

17
18 8. Respondent acknowledges the issuance of the final
19 order attached to this Agreement, including the assessment of
20 civil penalties therein. Respondent further acknowledges that
21 any payment of any penalties pursuant to this Agreement and Final
22 Order does not relieve the Respondent from its legal duty to
23 comply with the requirements of the Final Order, nor would the
24 payment of penalties prevent the enforcement of the Compliance
25 Order Activities of this Final Order, nor would the payment of
26 the assessed penalties relieve it of its duty to comply with
27 applicable provisions of RCRA and applicable provisions of state

1 of Washington laws and regulations governing the disposal of
2 hazardous (dangerous) wastes.

3
4 9. Respondent waives any right to a hearing on, or
5 appeal from this Agreement and Final Order. However, the parties
6 recognize and agree that Respondent does not waive any rights it
7 may have with respect to future application of EPA or state regu-
8 lations outside of this Consent Agreement and Order.

9
10 DATED: 5 November 1986

Attorney

William E. Maer

For Respondent Pacific Wood
Treating Corporation

11
12
13 DATED: 10/30/86

D. Don Egan
For Complainant Environmental
Protection Agency

14
15
16 FINAL ORDER

17 1. Based upon the foregoing Findings of Fact and
18 Conclusions of Law, which are incorporated herein by reference,
19 Respondent Pacific Wood Treating Corporation is hereby found in
20 violation of the regulatory provisions cited above in paragraph 6.

21
22 PENALTY ASSESSMENT

23 2. Respondent is assessed a civil penalty of fifteen
24 thousand dollars (\$15,000) for these violations. No interest
25 shall be charged on this amount.
26
27

1 3. The payment of the assessed penalty is suspended
2 and deferred to October 30, 1987, at which time they shall become
3 due and payable without further notice or proceedings UNLESS the
4 activities described in paragraphs 5 through 7 are performed
5 in a timely fashion. If the activities described in paragraphs 5
6 through 7 are performed in a timely fashion, the assessed penalty
7 shall be wholly excused automatically without further notice and
8 proceedings.

9
10 4. The assessed penalty shall become immediately due,
11 notwithstanding paragraph 3, if any of the described activities
12 do not occur on the dates described herein.

13 COMPLIANCE ORDER ACTIVITIES

14
15 5. Within thirty (30) days of the date of this Order,
16 Respondent shall submit documentation demonstrating the lawful
17 management and disposal of leachate collected from the landfill
18 known as the Ridgefield Brick and Tile Company (RBT landfill or
19 landfill). This documentation shall demonstrate full compliance
20 with 40 CFR Part 262 or 40 CFR § 261.5(g) through the establishment
21 of procedures and practices for the proper off-site disposal of
22 any leachate produced or collected from the landfill.

23 6. Within ninety (90) days from the date of this Order,
24 the Respondent shall demonstrate compliance with the financial
25 assurance requirements of 40 CFR Part 265, Subpart H, verifying
26 compliance with the post closure requirements for financial
27

1 assurance, or, if such compliance is impossible despite the best
2 efforts of the Respondent, shall submit appropriate financial
3 records and a proposed schedule for the establishment of a
4 trust fund to ensure compliance with the Subpart H regulations.
5

6 7. Within ninety (90) days of the date of this order,
7 the Respondent shall submit a 40 CFR Part 265, Subpart G closure
8 plan and schedule to EPA which shall address the installation of
9 a groundwater monitoring system at the landfill which is in
10 compliance with 40 CFR Part 265, Subpart F, and which would
11 provide sufficient hydrogeological information to satisfy the
12 requirements of 40 CFR § 270.14(c). This plan shall include
13 provisions which will ensure that the system shall be monitored
14 for all applicable parameters of 40 CFR §§ 265.92 and 93 and
15 pentachlorophenol and arsenic on a quarterly basis. The plan
16 shall also provide for a soil sampling plan to determine whether
17 any releases of hazardous or dangerous waste from the former
18 leachate collection system has occurred. This closure plan shall
19 be reviewed and approved by EPA and implemented by Respondent in
20 accordance with the procedures of 40 CFR Part 265.
21

22 GENERAL PROVISIONS

23 8. For each requirement described in paragraphs 5
24 through 7, the Respondent shall file a signed statement which
25 verifies the extent to which the conditions specified have or
26 have not been met or fulfilled. These signed statements shall be
27
28

1 mailed to EPA within two business days of the due date described
2 in the paragraphs.
3

4 9. By deferring penalties herein, the burden of
5 proving that payment of those penalties remains deferred and
6 suspended is hereby placed upon the Respondent.
7

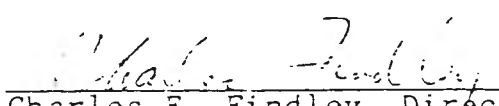
8 10. By written submission of a stipulation by both
9 parties, any date established in this Order may be modified.
10

11 11. All written submissions pursuant to this Order
12 shall be made to:

13 Kenneth Feigner, Chief
14 Waste Management Branch, M/S 533
15 Environmental Protection Agency
16 1200 Sixth Avenue
17 Seattle, Washington 98101
18

19 12. This Order shall terminate upon the approval of
20 a delisting petition by EPA at any time prior to the completion
21 of the Order's provisions.

22 IT IS SO ORDERED, this 21 day of August, 1986.

23 
24 Charles E. Findley, Director
25 Hazardous Waste Division
26 EPA Region 10
27
28

APPENDIX B

EPA GUIDANCE ON LANDFILL SAMPLING

Drums

If the waste is contained in drums, then ideally each drum should be sampled. If there are too many drums for this to be practical, then a representative number of individual drums must be randomly selected. This is easily done by assigning a number to each drum consecutively and then using a random number table to choose the sample. A detailed method for selecting drums for sampling may be found in the following publication:

"Waste Analysis Plans: A Guidance Manual," U.S. EPA Office of Solid Waste, Publication EPA/530-SW-84-012, October 1984.

For each drum, a single sample that samples the entire depth of the drum along its axis is sufficient. Equipment used for sampling waste in drums includes weighted bottles (for heterogeneous wastes), COLIWASAs, thieves, and triers. COLIWASAs and weighted bottles are best suited to sampling liquids and slurries; if the sample is dry granules or a powder, a drum thief should be used. A trier should be used to sample moist or sticky solids.

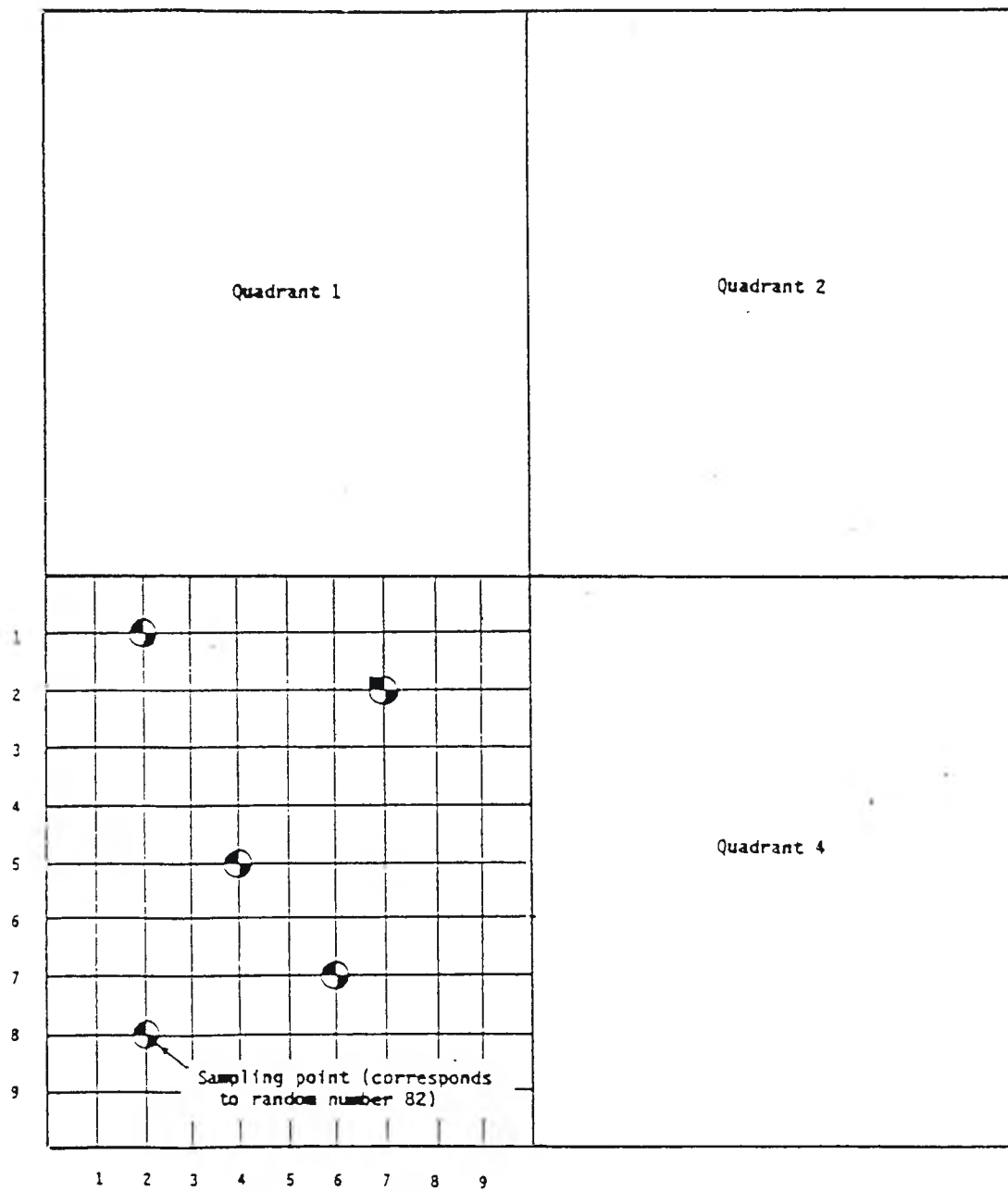
Landfills

Wastes contained in landfills are primarily solids or moist solids. These wastes are best sampled using a two-dimensional random sampling strategy as described below. (The procedure is also illustrated in Figure 7.6).

- (1) On a diagram, divide the landfill to be sampled into sections of equal area. If the area is under 40,000 square feet, then it should be divided into four equal quadrants. If the area is over 40,000 square feet, then it should be divided into equal sections of not more than 10,000 square feet each.
- (2) Divide each quadrant or section into an imaginary 10x10 grid to get 100 squares (or rectangles) of equal size. Number the grid lines in each dimension from 1 to 9.
- (3) For each section, determine the number of sampling points necessary to characterize the waste. This number will depend on the degree of spatial variability within the landfill.
- (4) Select a two-digit number using a random number table. Repeat this procedure until you have one two-digit number for each sampling point in the section. (Random number tables are available in any introductory statistics text or handbook. Their use is explained in Appendix G.)
- (5) Locate the grid intersections whose coordinates correspond to each of the two-digit random numbers. These

FIGURE 7.6: SCHEMATIC DIAGRAM OF SAMPLING GRID FOR A LANDFILL

The Figure shows a 30,000 sq ft landfill (150 ft x 200 ft) divided into four 7,500 sq ft quadrants.



intersections are the locations of the randomly selected sampling points.

- (6) Sample each selected grid point vertically along the entire distance from the top to the bottom of the landfill.
- (7) Combine the samples for each section and mix them well to form a homogeneous composite sample. Do not, however, combine samples from different sections.

For example, a landfill of 10,000 square feet would be divided into four quadrants of 2,500 square feet each. In each quadrant, a sufficient number of core samples would be taken and combined. The result would be four homogeneous composite samples, one from each quadrant. Similarly, a landfill of 60,000 square feet would be divided into six sections of 10,000 square feet each, yielding six homogeneous composite samples.

It is particularly important to obtain vertical samples along the entire depth, including the bottom. Hollow-stem augers combined with split-spoon samplers are frequently useful for sampling landfills. Triers or modified triers also may be used.

Lagoons

Lagoons are similar to landfills in that they cover a large area and stratification and settling are likely to occur. The same two-dimensional randomized sampling strategy therefore may be used. Again, it is important that each sample include material from the entire depth of the lagoon, including the bottom.* This can be done by using a COLIWASA.

Waste Piles

Ideally, waste piles should be divided into quadrants (in a similar fashion to landfills), and each quadrant sampled using a two-dimensional grid and random vertical core samples. Equipment commonly used to sample piles includes thieves, triers, and shovels.

Multiple Waste Treatment Facilities

The variety and number of incoming wastes accepted at multiple waste treatment facilities (MWWFs) result in less control over the variability of constituent concentrations. Since inherent variability makes it difficult to collect representative

*Note that if the listed waste is a sludge (e.g., Waste No. F006), the liquid above the sludge, if any, need not be sampled.